

5440-01 Agriculture, Food and Natural Resources

The holder is authorized to teach agriculture, food and natural resources in grades 7-12.

In order to be judged as competent, the candidate must have the following qualifications:

1. A total of one year of practical work experience in the vocational agriculture area of specialization.
2. Knowledge of the concepts, methods, techniques, and practices associated with one of the following areas of vocational agriculture:
 - a. production management;
 - b. agricultural sales and service;
 - c. agriculture mechanics;
 - d. horticulture;
 - e. agricultural resources.
3. Knowledge of supervised occupational experience programs and how to administer them.
4. Knowledge of appropriate computer technologies associated with the vocational agriculture areas of specialization.
5. Ability to involve students of all abilities in the concepts, methods, techniques, practices and new technologies of production management, agricultural sales and service, agricultural mechanics, horticulture, or agricultural resources.
6. Ability to teach students how to purchase, safely operate, and maintain hand and power tools, power unit, systems, heavy machinery and the farm buildings as relevant to the area of specialization.
7. Ability to teach students about the management and operations of agricultural business as relevant to the area of specialization.
8. Ability to introduce students to employment and career opportunities in vocational agriculture.
9. Ability to maintain a high level of skill performance in the area of vocational agriculture specialization.
10. Ability to integrate new skills, technologies, concepts, and other developments into the curriculum being taught.
11. Ability to assemble and use an advisory committee of community members to assist in curriculum development and program evaluation.
12. Ability to develop student skills in leadership, citizenship, and interpersonal relations, as well as to develop appropriate work attitudes and habits through activities which may include those of Future Farmers of America.

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Required knowledge in area of specialization (see #1 above):

Product Management

1. Knowledge of land uses and corrective practices, harvest varieties of forage and grain crops, pest control practices, and storage, processing and marketing of plant materials.
2. Knowledge of livestock breeds, and methods for feeding, breeding, housing, milking, maintaining the health of farm animals and for processing and marketing animal products.
3. Knowledge of how to purchase, operate and maintain hand and power tools and farm machinery, as well as how to plan, construct, and maintain farm buildings.
4. Knowledge of how to administer and manage an agricultural production business including business planning, the development of budget and inventory systems, how to record and analyze production and performance records, write contracts, complete government, banking, and insurance forms.

Agricultural Sales and Service

1. Knowledge of how to identify agricultural supplies and services.
2. Knowledge of how to provide safe and adequate storage, housing and transportation for agricultural supplies and products, plant materials, and livestock.
3. Knowledge of selling and merchandising of agricultural supplies and products, plant materials and livestock.
4. Knowledge of how to administer and manage an agricultural business which handles the production phase of agriculture, including knowledge of business planning, inventory systems, business record keeping, writing contracts, and completing government, banking and insurance forms.

Agricultural Mechanics

1. Knowledge of how to operate safely and maintain agricultural power units such as hydraulic and cooling systems, as well as how to operate and maintain agricultural machinery and special hand and power tools.
2. Knowledge of how to plan, construct and maintain agricultural structures including knowledge of plumbing and heating, ventilation and refrigeration systems.
3. Knowledge of the principles of electricity including electrical wiring and how to maintain electrical motors and controls.
4. Knowledge of how to use arc and gas welders.

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Horticulture

1. Knowledge of how to grow and maintain flowers, house plants, landscape plants, shrubs, trees, turf, vegetables, small fruit or orchard crops for recreational, environmental, or ornamental purposes, or for human consumption.
2. Knowledge of the principles and practices in the management and operation of a greenhouse, a nursery, a landscape business, a fruit business, or a vegetable business including planning, record keeping, crop schedules, sanitation, pest control, marketing, customer relations, and of how to file appropriate banking, insurance and government forms.
3. Knowledge of how to purchase, operate and maintain hand and power tools and machinery including tillers, mowers, misting systems, chainsaws, landscaping and turf tools and tractors.

Agricultural Resources

1. Knowledge of how to identify trees, read maps, survey, manage, and harvest woodlot products, manage Christmas tree plantations, and produce and market maple products.
2. Knowledge of how to operate safely and maintain hand and power tools used in the agricultural industry, including axes and chainsaws.
3. Knowledge of how to operate safely and maintain heavy equipment such as skidders, bulldozers and backhoes.
4. Knowledge of testing and analyzing soils, soil management and conservation practices, water management practices, and management of wildlife species in their natural habitat.
5. Knowledge of how to develop lands for safe recreational use such as campgrounds, hunting and fishing preserves and nature or hiking trails.
6. Knowledge of how to manage and operate a business in agricultural resources including business planning, record keeping, filing government, banking and insurance forms, estimating job costs, and writing contracts.